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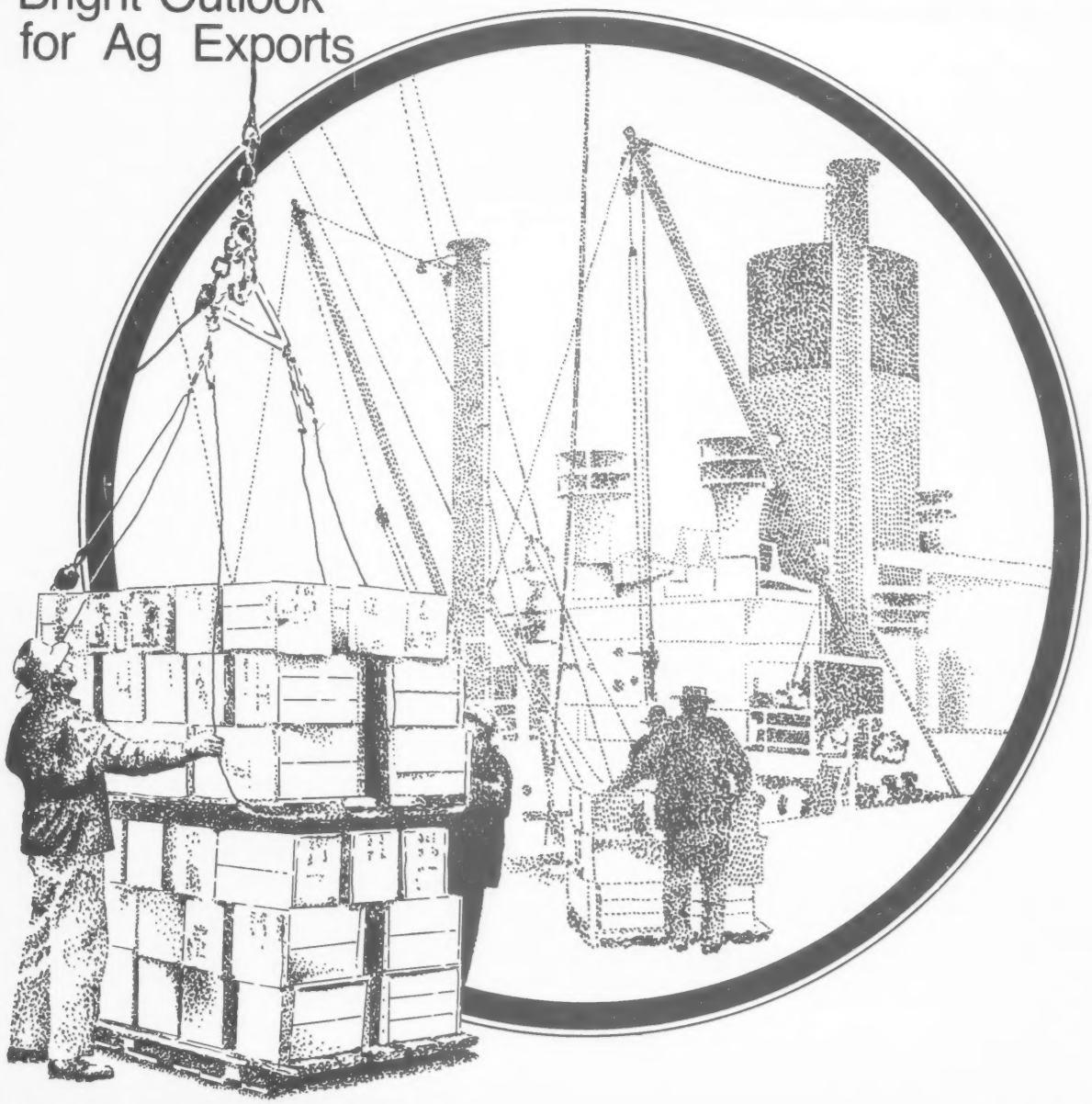
Economics,
Statistics,
and Cooperatives
Service

April 1979

FARM INDEX

Bright Outlook for Ag Exports



Outlook

The agricultural sector has gotten off to a stronger than expected start in 1979—with mixed results for producers and consumers.

For farmers, the heavy demand and reduced supplies have meant sharply higher prices . . . a definite plus in terms of their income. Consumers, too, are seeing higher prices for the foods they buy . . . but for them these prices are a minus.

Food price forecast. While retail food prices in 1979 are still expected to rise 8 to 10 percent from 1978, current conditions suggest an increase in the neighborhood of 10 percent.

Earlier in the year economists had predicted a 7-½-percent-rise—but reduced supplies and stronger than expected demand have added about 1 percent to that forecast.

This year's food price increases will be sharpest early in the year because of weather-induced supply problems for some fresh foods and tight meat supplies this winter.

Marketing margins. Marketing margins will probably rise about as much this year as they did last—8 percent. That's also pretty much in line with the expected inflation rate for the rest of the economy.

However, a lot will depend on how successfully the Government's anti-inflation program holds down increases in labor, packaging, transportation, and other costs.

Wage settlements for workers in food manufacturing, wholesaling, and retailing will have a significant impact on marketing margins and the rate of increase in food prices.

Even though only one-fifth of the workers employed in the food industry are union members, the many collective bargaining settlements to be negotiated will influence wage increases throughout the industry.

Another banner export year. U.S. farm products have been moving abroad at a rapid pace despite record world grain and oilseed crops. In fact, our sales value will probably top $30 billion, an all-time high, by the end of this fiscal year. And the volume will probably match last year's record 122 million metric tons.

Further improvement in farm income. Because of higher prices, farmers' 1979 cash receipts should rise more than their production expenses, leaving net farm income (before inventory adjustment) above 1978's $28.2 billion. Right now it looks as if the final outcome will range between $28 and $33 billion, with something around $31 billion most likely.

Farm prices were up sharply during the first 2 months of 1979. In February, the index of prices received by farmers was up 8 percent from last December. Prices of beef cattle rose the most, 18 percent.

USDA economists forecast that for all of 1979 livestock prices will average about a fifth over 1978 levels. However, a decline in marketings will hold the rise in overall livestock and livestock product receipts at a slightly lower level.

Much more modest gains are foreseen in 1979 crop prices. But an expected heavy selloff of current large crop inventories could push crop receipts up $2 to $4 billion from last year.

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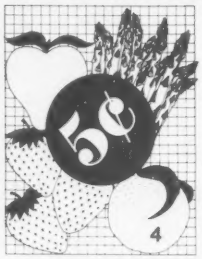

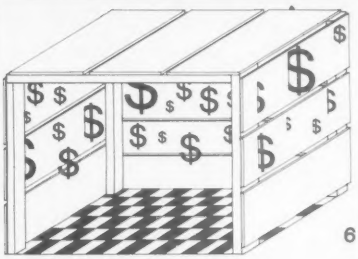

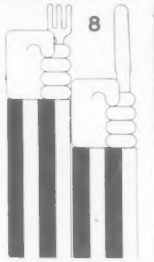

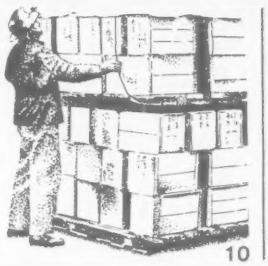

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Direct Marketing: Alternative Outlet for Farmers

EDITOR'S NOTE: Small-scale farmers often specialize in the types of products sold most frequently by direct marketing outlets—fruits, vegetables, and eggs, among others. For them, direct marketing is a way of increasing farm income. This is the second in a series of articles about the interests and concerns of America's small-scale farmers.

Direct marketing of farm products—through roadside stands, pick-your-own (PYO) operations, and farmers' markets—is nothing new. In fact, it is the oldest form of food distribution.

In 1976, there were nearly 9,000 roadside stands, about 3,000 PYO's, and 500 farmers' markets operating in 41 States and the District of Columbia, according to a recent USDA study. Estimates for the other States brought the total number of outlets to over 13,000.

The most popular items sold through direct marketing outlets are fruits, vegetables, eggs, dairy products, meat, poultry, baked goods, tree nuts, honey, nursery products and handicrafts.

Market locations

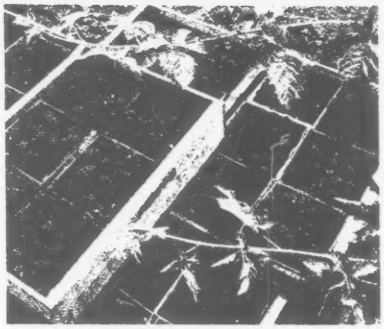
Areas of heavy fruit and vegetable production tend to have the largest number of direct marketing outlets. Population density of an area also affects the number of outlets.

As one observer noted, a direct marketing outlet must have "enough goods to make the trip worthwhile for customers, enough customers to make the trip worthwhile for farmers."

Considering the relationship between State population and fruit and vegetable production, it's little wonder that the most direct marketing outlets are found in the Northeast and Great Lakes areas. Two major geographic exceptions are Florida and California.

Alternative outlet

Farmers see direct marketing as an alternative outlet to increase farm income. They also like being able to sell perfectly good produce which is unac-



ceptable for conventional sales because of size, shape, color, or other restrictions.

Consumers are pleased with direct marketing because they feel it lets them buy fresher farm products at cheaper prices, including certain items that otherwise might be too expensive.

To promote direct marketing, the Farmer-To-Consumer Direct Marketing Act was passed by Congress in October 1976.

Under the law, Federal appropriations were given to the States to develop and expand direct marketing. Projects have ranged from a joint Georgia-South Carolina effort aimed at low-income consumers to a New Jersey educational film for farmers and consumers.

Funds for research

The Act also provided USDA's Economics, Statistics, and Cooperatives Service (ESCS) with funds to conduct needed research on direct marketing in the U.S.

To determine the extent and importance of direct marketing, ESCS is currently surveying the size and type of different marketing activities in six states—Indiana, Michigan, New Jersey, North Carolina, Ohio, and Pennsylvania.

These States were selected because of the importance of direct marketing to their agricultural economies and the availability of sampling lists for identifying direct markets currently in operation.

Direct marketing advantages

ESCS will also examine the advantages of direct marketing for farmers and consumers. This consists of comparing prices, food quality, and profits of direct marketing outlets to conventional markets.

ESCS conducted a national survey of 1,350 food shoppers last year concerning their interest in using various food marts, including direct marketing outlets.

About 18 percent of the surveyed shoppers patronized PYO operations, especially those from households with children. Shoppers who maintained gardens were also more likely to buy from a PYO, perhaps because they were more appreciative of the fresh produce available at these outlets.

No inconvenience

More than half of all PYO customers indicated no problems or inconveniences shopping at such outlets. Only 20 percent thought traveling back and forth to PYO's was an inconvenience.

Nearly 38 percent of the respondents indicated they purchased food at farm or roadside stands. As with the PYO's, these customers were more likely to have a garden.

About 62 percent of the roadside shoppers cited no specific disadvantage to this type of direct marketing, while only 17 percent indicated that traveling to and from the outlet was bothersome.

Satisfied customers

The survey revealed that consumers who have shopped at either PYO's or roadside stands were generally satisfied and planned to return to them in the future.

The respondents cited better quality products and lower prices as the major reasons for shopping at these outlets. Whether the benefits are enough to increase the number of customers—with or without more promotional efforts—remains to be seen.

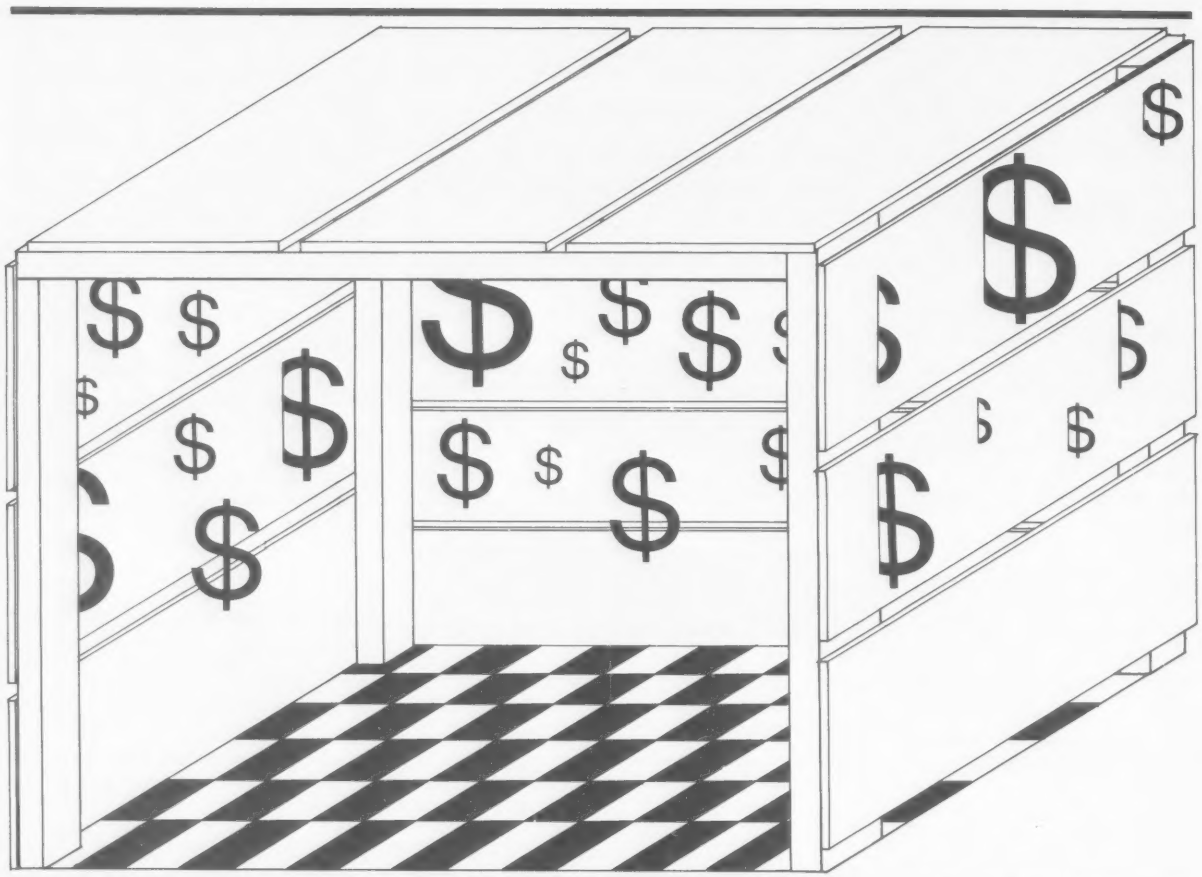
[Based on the report, "Farmer-To-Consumer Marketing," by H.R. Linstrom, and the article, "Pick Your Own and Roadside Stands: Who's Buying and Why?", by Jon Weimer in the December 1978 *National Food Review*. Linstrom and Weimer are with the National Economic Analysis Division.]

States with the Most and Least Direct Marketing Outlets, 1976

Top 10 States	Total estimated outlets	Bottom 10 States	Total estimated outlets
New York	1,190	Nebraska	2
New Jersey	954	Oregon	12
Ohio	920	Alaska	13
Michigan	878	Colorado	15
Pennsylvania	770	Hawaii	15
California	715	North Dakota	17
Connecticut	656	Louisiana	20
North Carolina	585	Arizona	40
Indiana	537	Rhode Island	44
Texas	520	South Carolina	47

Estimates not available for Idaho, Kansas, Minnesota, Montana, Nevada, Oklahoma, Utah, Washington, and Wyoming.

Cutting Convenience to Cut Costs



Steadily rising food prices force shoppers to try trimming their food bills without cutting nutrition or value. And if experimental warehouse food stores catch on, they just might have some success.

Warehouse stores, unlike conventional supermarkets, offer a limited range of services and products and fewer frills and conveniences. In return, consumers pay lower prices for the foods they buy.

There are two basic types of warehouse stores—general and box—about 500 in total. The first is relatively large and carries about 3,000 to 5,000 items, compared with 8,000 for a supermarket, but stocks only a limited selection of produce and no fresh meat.

Box stores

Box stores, on the other hand, are much smaller than supermarkets, and carry only about 500 fast-moving grocery items. Most sell no produce, meat, or items requiring refrigeration.

The operating costs of warehouse stores differ from the costs of a conventional supermarket. Gross margins are about 12-13 percent for a warehouse store, compared with about 17 to 18 percent for a conventional supermarket. Since gross margins are lower, volume sales are important to warehouse stores.

These stores are not meant to serve the shopper's total food needs. In fact, they are often deliberately located near conventional supermarkets.

Lower food prices

Warehouse stores, although still in their early stages and accounting for an insignificant portion of total food outlets, are important because it's the first time since the rapid growth of supermarkets that there's been a direct attempt to lower food prices.

Rising incomes, changing lifestyles, and more women in the labor force caused a rapid growth in the conventional services offered by supermarkets, such as delicatessens and more frozen foods.

But offering these services also increased the costs of building and operating the stores, which eventually led to higher retail prices. Now, however, alternatives, such as warehouse stores, farmers' markets, and roadside stands, compete against the high-cost structure built into conventional supermarkets.

Common characteristics

Warehouse stores differ drastically in convenience and the product prices they offer. But, to a varying degree, they all have certain common characteristics:

- A limited selection of foods.
- Items sold directly from the packing crate.
- A sparse atmosphere—no fancy fixtures or flooring.
- Goods not individually price marked (where permitted by law).
- Bags supplied by shoppers.

Inflation has fueled consumer interest in these stores. But their potential to hold down total food costs is limited by two factors: the lack of perishable items and the willingness of consumers to forego convenience for price.

Lack of perishables

Perishables and refrigerated products account for about 60 percent of all food purchased for use at home. And since these products are generally unavailable in warehouse stores, or available only to a limited degree, consumers are forced to do at least part of their shopping elsewhere.

Convenience may be an even more important factor in limiting the use of warehouse stores. Almost 40 percent of respondents in a recent USDA study placed satisfaction and convenience as their first priorities in selecting a food store. And because warehouse stores are open fewer hours, and offer fewer commodities and less service, these consumers will likely continue to do their shopping in conventional supermarkets.

Development factors

Despite these drawbacks, changes in the cost structure of the food retailing industry seem to be playing an important role in the development of warehouse stores.

Labor costs, which keep rising each year, make up about 9 percent of total supermarket sales. Energy, land and rent, and advertising costs have also risen sharply. In addition, product proliferation—offering only marginal product differentiation—has raised space costs.

Payroll costs in warehouse stores are considerably lower, reflecting not only shorter hours, but in many instances the use of part-time and nonunion labor. And since the customers do their own bagging, marking (where permitted by law), and carryout, much of the labor cost is shifted to the shopper.

Other expenses, such as advertising and energy, are also lower for warehouse stores, since advertising is done mainly by word-of-mouth and fewer refrigerator units, smaller store size, and more efficient use of space help hold energy costs down.

Viable alternative?

With such advantages, warehouse stores apparently represent a viable alternative to those consumers who are willing to trade convenience for price.

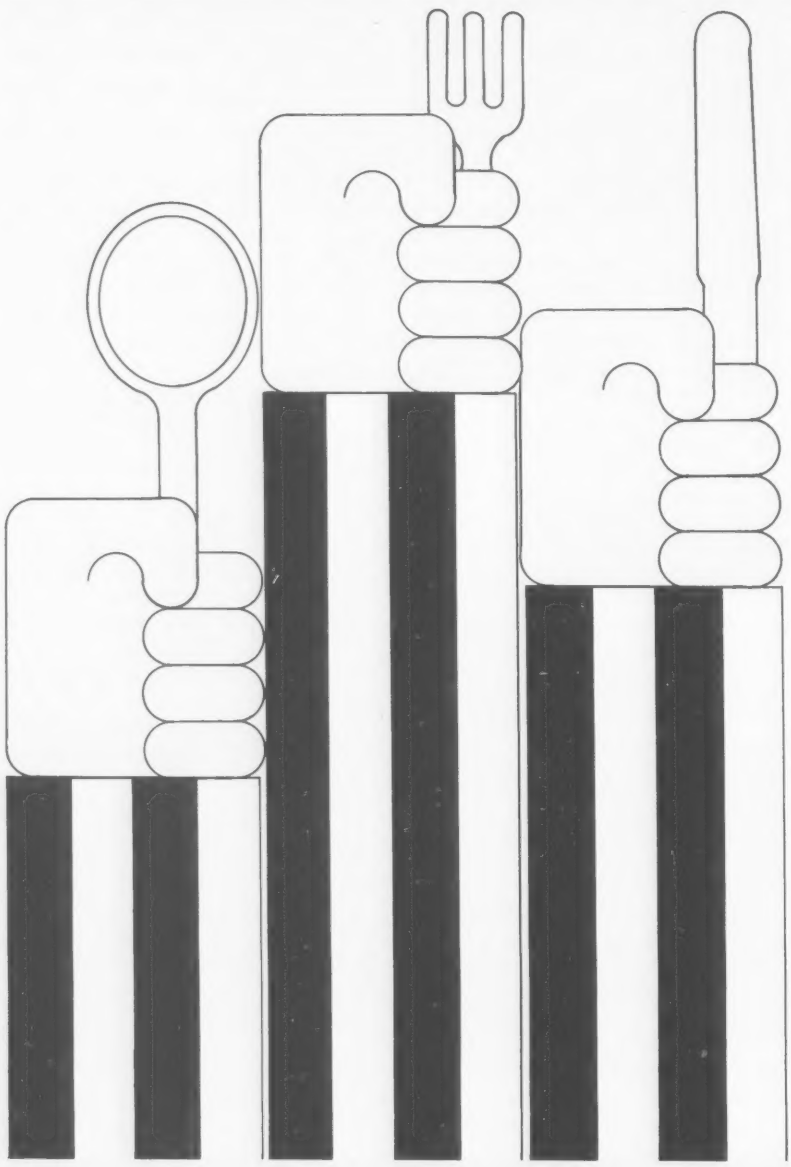
Warehouse stores are designed primarily for cost-conscious consumers. Presently, they represent only a small portion of the consumers' total food marketing bill and require a relatively large tradeoff of convenience for price.

The growth of such stores will depend largely on the willingness of shoppers to make this tradeoff. This, in turn, will be influenced by trends in family size, the rate of food price inflation, and the level of employment and income.

Although it is unlikely that warehouse stores will completely replace the more traditional supermarkets, their strength lies in the fact that they offer consumers an alternate place to buy food.

[Based on the article, "Consumers and Warehouse Stores," in the December 1978 *National Food Review*, by Anthony E. Gallo and Charles Handy, National Economic Analysis Division.]

The Convenience Market



Americans prefer to let someone else do the cooking—even if it costs more.

In fact, eating out has become so popular over the past 20 years that consumers now spend more than a third of the total food budget—35 percent—to dine away from home.

Even when a consumer buys food to prepare at home, it's increasingly likely that it will be bought in an easy-to-prepare form or from a quick-service, late-hours store.

In fact, this trend has sparked a huge growth in convenience stores—small, modern grocery stores that stay open long hours to provide quick and handy service, usually at higher prices. From 1957 to 1977, convenience store sales rose from $75 million to nearly $9.7 billion—a compound growth rate of almost 28 percent annually.

New affinity

So, why are Americans showing such an affinity for quick, easy, and relatively expensive food outlets? Researchers have identified several probable factors:

- Family buying power has risen even faster than inflation. Median family income, in 1977 adjusted dollars, rose from $11,500 in 1960 to $16,000 in 1977.

- The overall education level has increased. Among Americans 25 years or older, median education climbed from 10.6 years in 1960 to 12.4 years in 1977. In that period, the percent of 25 to 29 year olds with at least 4 years of college more than doubled.

• An increase in one-person households and a declining birthrate have lowered the average number of persons per household from 3.3 in 1960 to 2.9 in 1977.

• Women comprise a larger portion of the civilian work force. In 1960, about a third of the labor force were women. In 1978, that portion had risen to 41 percent.

Contributing factors

All of these factors seem to contribute to this trend. For example, college graduates eat outside the home nearly 50 percent more often than do those with lower educational backgrounds.

Regardless of educational levels, two-thirds of the U.S. population can be found at a restaurant or carryout at least once a week. A fifth eat out at least five times a week.

The trend has fueled a dramatic growth of fast-food outlets. Between 1965 and 1976, the number of fast-food franchising firms included in a nongovernment list of the top 100 firms in the food service/lodging business increased about 75 percent.

Growth was so rapid during this period that some fast-food franchising firms now included in the top 100 firms weren't in business or large enough in 1965 to be included as one of the 400 largest food service firms.

Supermarket strategy

Supermarkets are trying to devise ways to slow the eating out trend—or to capture a share of this market.

With their share of the consumer food dollar declining, supermarkets have ample incentive to improve their competitiveness. Yet the industry has been slow to depart from its traditional methods of trying to improve their sales, such as expanding into nonfood lines, promoting price discounts, and changing store size and appearance.

However, some changes are evident. Many grocery stores have established delicatessens, and devoted more space to convenience foods—especially frozen foods. From 1973 to 1976, the portion of supermarkets offering delicatessens rose from 17 to 37 percent.

A future target of supermarket marketing strategies, according to some industry officials, may be the working mother. These women have shown a willingness to pay extra for convenient food forms and fast service.

Easy-to-fix forms

Even when food is prepared at home, there's a growing demand for convenient, easy-to-fix forms, such as frozen, dry-mixed, powdered, freeze-dried, and boil-in-the-bag products.

Convenience foods developed since 1960 now capture almost 13 percent of supermarkets' food sales. While their use is generally easier, quicker, and energy-efficient, their average cost is nearly 1 percent more than if the same amounts of basic ingredients were bought from the same source and prepared at home from scratch.

Although it costs slightly more to feast on convenience foods from a supermarket, the expense of eating out is considerably more.

Depending on the services provided, restaurants and carryouts may add 45 to 65 percent to the cost of the meal to cover profits and overhead. Convenience stores also extract a stiff fee for their services, adding 25 to 30 percent to cover profits and operating expenses.

Cost of eating out

With an average gross margin of 18 percent in supermarkets, 28 percent in convenience stores, and 59 percent in food service establishments, food in restaurants and carryouts would cost twice as much as the same food when purchased from a supermarket (not including home preparation costs).

Using the same average gross margins, food bought from convenience stores would cost about 14 percent more than the identical items in a supermarket.

Considerable effect

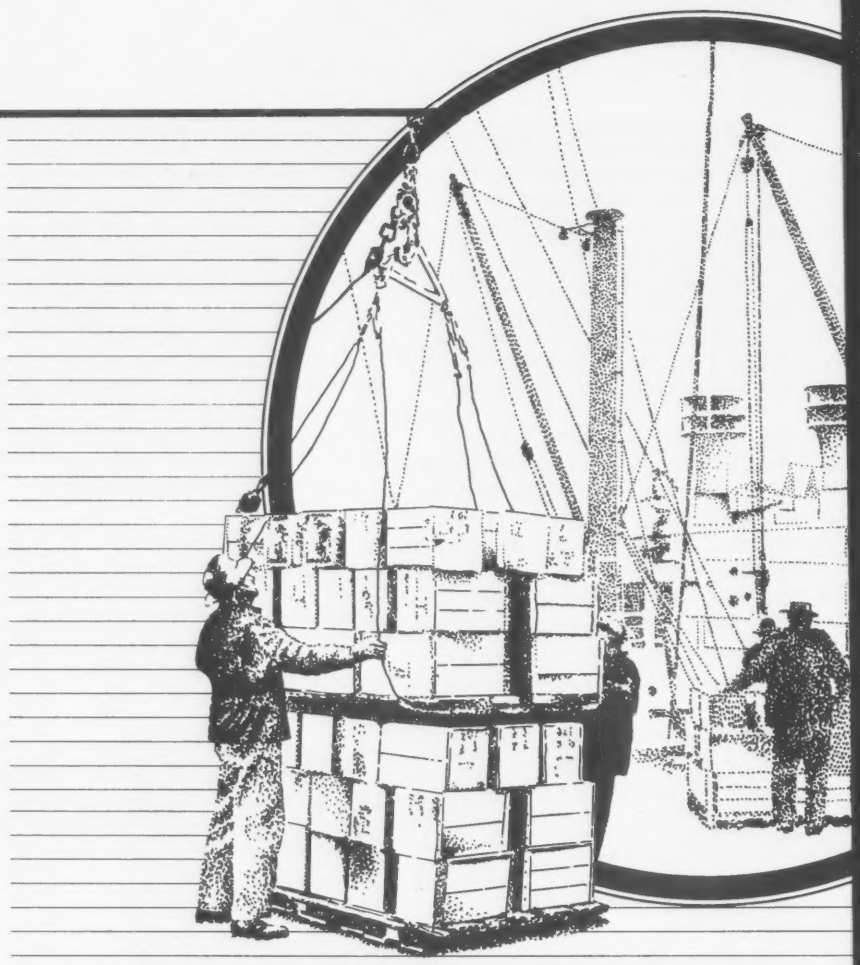
Considering that purchases of food away-from-home and at convenience stores account for 37 percent of all food expenditures, the effect of the greater gross margins—the markups above the basic cost of the food itself—is to significantly boost total American food expenditures.

Since factors behind these trends in food purchasing are not expected to reverse, the demand for convenience foods should continue to grow, along with the effect of the food service and convenience food markup on the total U.S. food budget.

However, considering its price, many consumers may still find that the added convenience is indeed a "good buy."

[Based on special material by Thomas H. Stafford and John H. Wills, National Economic Analysis Division.]

Bright Outlook for Ag Exports



Though it's still early in the fiscal year, USDA forecasters figure it's a pretty sure thing that the value of our farm export sales will break all previous records by yearend.

Based on prospective U.S. supplies and agricultural conditions around the world, our farmers can expect to ship over $30 billion worth of goods in fiscal 1979. Values will be up sharply for oilseeds and animal products.

Total volume of shipments will probably stay fairly near last year's 122 million metric tons. Volume increases are expected for many important export products—soybeans, feed grains, rice, protein meal, and tobacco. However, a 2-million-ton decline in wheat exports is likely.

The current forecast is underpinned by the rapid pace of sales in October-December—the first 3 months of the fiscal year. These were up more than a third over the year-earlier period.

Around the world

Before outlining the export forecasts for specific farm commodities, here's a quick rundown of world economic conditions which help explain the expected ups and downs in our farm shipments this year.

One of the key developments is the steep raise in oil prices. The Organization of Petroleum Exporting Countries (OPEC) boosted prices 5 percent on January 1, and there will be a cumulative 14.5-percent increase by October 1.

In addition, a number of oil producers individually have announced steep price increases since supplies of Iranian oil were disrupted.

While the OPEC oil price increase will curtail the buying power of some nonmember countries, the overall effect on U.S. agricultural exports is expected to be slight.

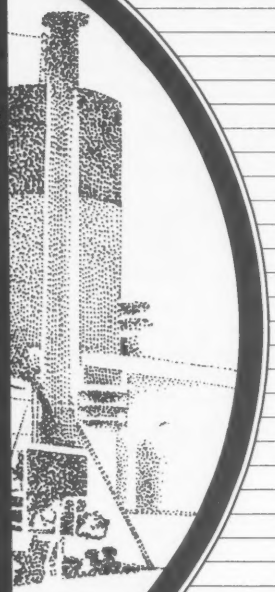
EC and Japan

Economic growth in our two largest markets—the European Community (EC) and Japan—is expected to exceed the 2-percent forecast for the U.S. in 1979. This, coupled with the depreciation of our dollar, is spurring our exports.

Larger sales are also expected to the OPEC countries, whose capacity to import is increasing sharply as a result of the oil price hike.

Economic growth for the developing countries as a group is projected at annual rate of over 5 percent in 1979. Only a few, like Zambia, will face major financing constraints.

Major U.S. markets—especially



Korea, Taiwan, and Mexico—have favorable growth and payments prospects.

Commodity outlook

As usual, the outlook for U.S. exports varies, depending on the commodity. Export values are expected to swell for most commodity groups, with oilseeds a particularly big gainer.

Following a 30-percent volume gain in fiscal 1978, soybean exports are expected to increase another tenth this year—to a record of over 21 million tons. Sales value will also rise to an all-time high of $8.7 billion.

The surge in sales this year is the result of strong global demand, plus some tightening in world supplies as poor weather has lowered prospects for Brazil's soybean crop.

One of the key elements in the forecast of U.S. soybean shipments is a projected 5-percent increase in prospective exports to the EC, reflecting their continued push to expand livestock output. This increase follows on the heels of a 28-percent gain in fiscal 1978.

Soviets need U.S. soybeans

In addition, the Soviet Union had another below-average sunflowerseed crop last year and is expected to turn to the U.S. for over 1 million tons of soybeans to fill the gap.

U.S. feed grain exports are now expected to top last year's record despite the sharp increase in world production and a buildup in world stocks.

Exports during October-January were about 1 million tons above those of a year earlier. Key factors in the market this year are: the opening of the Chinese market for 3-½ million tons of U.S. corn; larger than anticipated exports to the EC as result of their continued buildup in hog and poultry production; and exports to the U.S.S.R. well above the minimum 3-million-ton level set in the grain agreement.

This latter reflects continued expansion in the Soviets' livestock and poultry industries and a decline in their 1978 corn crop.

Stiff competition for wheat

U.S. wheat exports in fiscal 1979 will be down about 6 percent. The reason: Last year's record world output of 436 million tons reduced demand and increased competition in major markets.

Major factors in the wheat export market include a likely cut of 10 to 15 percent in our sales to the EC because of that area's record 1978 crop and some slippage in sales to the U.S.S.R. in light of that country's record wheat harvest. Our wheat exports this year are likely to total little more than the minimum 3 million tons required by the U.S.-U.S.S.R. grain agreement.

However, a new market for wheat in China will help offset some of the smaller sales elsewhere. The Chinese are in the world market for about 9 million metric tons of wheat to use for upgrading diets and stockpiling. The U.S. will probably supply about 3 million tons of that total.

Big gains

Exports of most other commodities are expected to gain significantly in fiscal 1979.

U.S. cotton exports should remain very large. Despite a smaller crop last year, our export supplies are adequate and U.S. prices are competitive on the world market. World import demand is expected to remain strong, and production in several other countries has been disrupted by bad weather. Thus, U.S. export volume should remain very large.

For animal products, higher prices are expected to push export values to a record $3.3 billion. Beef and slaughter cattle exports to Canada are expected to increase because of re-

duced Canadian production and the easing of restrictions regarding chemical residues. Also, we should sell more beef to Japan, where demand for meat continues to outstrip domestic production capacity.

Poultry and eggs

Poultry and egg shipments are expected to continue to expand, with sales increasing to the Caribbean, Japan, Hong Kong, Singapore, and the EC. However, the value of our dairy sales continues its downward trend because of low prices on the world market for nonfat dry milk.

For tobacco, a 6-percent volume increase is in prospect. Stocks of U.S. leaf are small in many countries, and the depreciation of the U.S. dollar has restrained price increases to importers. Larger sales are forecast to Japan, the EC, Thailand, and South Korea.

Fruits and vegetables should score some gain in export value, although volume could slip for several items. U.S. exports of citrus and dried fruits are likely to fall because of reduced U.S. production and increased competition in the EC from Mediterranean producers.

Tree nuts

Heavy rains during spring and fall also reduced the U.S. harvest of almonds and walnuts, which has cut down on the quantity we can ship abroad. However, higher unit values should more than make up for the smaller sales volume.

Our sales total for sugar and tropical products is expected to climb about 7 percent. Exports of sugar and flavoring sirups and extracts are up. Also, the normalization of relations with China will likely increase trade in ginseng, as well as flavoring sirups and extracts.

Agricultural imports by the U.S. in fiscal 1979 are expected to mount approximately 6 percent to nearly $15 billion, mainly due to price hikes for meat products.

Meat and meat products

In fact, the value gain for meat and meat products alone represents over three-fourths of the total expected increase in our import bill. Reduced U.S. beef output is prompting larger exports on our part, while world market prices for meats have been boosted by the tighter worldwide supplies and the stronger demand that has occurred because of gains in real income.

If the current forecast of U.S. exports and imports is near the mark, our agricultural trade surplus—exports less imports—will increase again this year. It might total $15 billion, compared with $13.4 billion in fiscal 1978.

[Based on *Outlook for U.S. Agricultural Exports*, Feb. 16, 1979, by the Foreign Demand and Competition Division and the Foreign Agricultural Service.]

U.S. Agricultural Exports[1]

	Volume		Value	
	1978	1979[2]	1978	1979[2]
	1,000 metric tons		$ Million	
Grains and preparations			10,866	11,600
Wheat and products	33,197	31,000	4,139	4.500
Rice (milled)	2,108	2,200	833	640
Feed grains	55,545	55,900	5,695	6,100
Oilseeds and products			7,451	8,700
Oilcake and meal	5,840	5,900	1,176	1,400
Soybeans	19,686	21,400	4,749	5,800
Vegetable oils and waxes	1,545	1,375	966	880
Cotton	1,317	1,300	1,694	1,800
Tobacco	272	280	1,132	1,300
Fruits, vegetables, and nuts[3]	—	—	1,922	2,100
Animals and products	—	—	2,810	3,300
Other	—	—	1,423	1,500
Total	—	—	27,298	30,300

[1]October-September years.[2] Forecast.[3] Includes pulses.

Export Economics

Country A sells a bushel of wheat to Country B for $3. Country B sells the wheat to a mill for $2. Modern math? No, export economics.

The prices at which American firms sell export commodities may have little to do with the importing Nation's domestic price, reflecting internal pricing policies rather than the world market price.

For instance, if Japan purchases American soybeans, changes in the import price are passed along to its producers and consumers. However, if Japan buys wheat, its domestic resale price doesn't hinge on how much they paid for it on the world market.

Terms of trade

These pricing structures depend on the varying terms of trade for different commodities and different countries. Generally, the commodity is priced according to the internal consumption price, and not the U.S. export price.

The demand for U.S. agricultural products overseas is partially influenced by the export price, and thus, is price elastic. Price elasticity is the percent change in demand that results from a 1-percent change in the export price.

However, the size of these price elasticities is a matter of debate among economists.

Varying elasticities

For example, if soybeans had an elasticity of -2.8, for every 1-percent increase in the U.S. soybean price, foreign countries would demand 2.8 percent less.

Estimates of the elasticity of export demand for U.S. agricultural products may be quite large if free trade is assumed. One such estimate was as large as -10.8 for feed grains.

If there were free trade throughout the world, the world market price would be reflected in the price of a loaf of bread in a Tokyo store. But free trade does not exist in most places. Taxes, tariffs, and trade agreements "insulate" foreign producers and consumers from the export price.

Price insulation

Many governments, including those in the European Community (EC—West Germany, France, Denmark, Italy, Luxembourg, the Netherlands, the United Kingdom, Belgium, and Ireland), Japan, and the U.S.S.R. protect their producers and consumers from outside price fluctuations.

This "price insulation" does not give them a chance to respond to a high or low world market price. When this is taken into account, the estimated price elasticities are much smaller.

Since many countries are insulated, some economists now use an additional measure of responsiveness to world market price changes, called "price transmission elasticity." This elasticity measures the commodity price changes a foreign country makes in response to changes in U.S. export prices.

Price transmission elasticity

If the price transmission elasticity is equal to one, the foreign price will vary in direct proportion to the U.S. export price. This is known as "prefect price transmission." The elasticity will be less than one if the foreign price is subject to tariff or transportation costs.

If the government of a country insulates the internal production and consumption prices from the world market price, as the EC and centrally planned countries do, the price transmission elasticity will hover around zero.

ESCS economists analyzed the elasticity of feed grains, wheat, and soybeans, among other export commodities, for several major importing and exporting regions. By and large, they found that most major importing countries insulate the internal consumption price from the U.S. export price for feed grains and wheat.

On the other hand, soybeans and soybean meal are freely traded on the import market in most countries.

Commodities differ

Different countries, or groups of countries, have different trade policies for the three commodities. For example, the EC determines its wholesale prices for feed grains and wheat by its minimum import prices, while soybeans are freely traded.

Production shortfalls and livestock production goals determine the amount of feed grain and wheat imports needed in Eastern Europe countries; prices are set by the States. Soybean import levels depend on cereal availability and internal needs.

Japan maintains a fixed resale price for its wheat, but allows completely free trade in feed grains and soybeans. Russia's imports of feed grains and wheat are determined by formal agreements, while trade in soybeans is limited.

[Based on "Elasticity of Foreign Demand for U.S. Agricultural Products: The Importance of Price Transmission Elasticity," by Maury E. Bredahl, University of Missouri-Columbia, formerly with ESCS; and William H. Meyers and Keith J. Collins, Commodity Economics Division.]

Cotton Marketing Goes Computer

The computer is quickly becoming business' best friend. Banks, department stores, insurance companies, as well as a host of other operations, would come to a halt without the computer.

But the computer has met limited acceptance in marketing raw farm products. Potential benefits might be reduced marketing costs, more accurate pricing, greater competition, easier market access, lower purchasing costs, improved marketing information, and higher prices for farmers.

Presently, cotton has the only computerized market operating in the U.S. Called Telcot, the system is run by Plains Cotton Cooperative Association (PCCA) in Lubbock, Tex.

Telcot terminals

Telcot is designed to use a network of remote, cathode-ray terminals connected to a central computer at PCCA for high-speed communication between cotton producer cooperatives and buyers.

The terminals are located in the offices of PCCA, 29 subscribing cotton merchants, and 75 regional gins. Any subscribing buyer can examine reports on the specific quality characteristics of the cotton for sale, as well as asking prices, and gin and warehouse location. Such information is stored in the computer and used each day in updating market price estimates.

Two alternatives

After a producer's cotton has been harvested, ginned, and classed, "class cards" are delivered to PCCA, where the data are coded into the central computer under the producer's identification number. At that point, the producer has two alternative procedures to sell his cotton—the regular or the firm-offer system.

In the first system, the producer—through a member gin—contacts PCCA via telephone and obtains PCCA's estimate of the asking price for a particular lot of cotton.

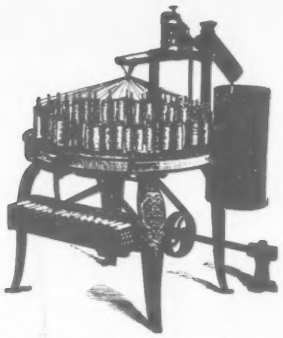
If the producer chooses to sell, he notifies PCCA and the cotton is placed on the system. Potential buyers access the report on that lot on their remote terminals to determine if they want to bid.

Price bidding

Bidding on the lot is open for 15 minutes; if the high bid is within 25 cents per pound of the asking price, the cotton is automatically sold to the highest bidder. If the high bid is more than 25 cents per pound below the asking price, the producer may still accept the bid, but he must do so within the time limit.

With the Telcot firm-offer system, a producer can specify the price he will accept for a lot of cotton, and it will be sold to the first buyer willing to meet that price. This procedure allows the producer to establish an offering price.

Using this method, a buyer may search a pool of firm offers for specific



characteristics, including quality, price, lot size, and location.

Gin locations

Producers from any of 190 participating cooperative gins can use Telcot to sell cotton. These gins are located in the High and Rolling Plains areas of Texas and Oklahoma and the Texas Rio Grande Valley.

Because of the high costs of computer marketing, only large organizations, such as regional cooperatives, trade organizations, or government, can afford to use it.

For example, the Telcot computer costs about $1 million; the programing costs are unavailable, but could well exceed the cost of the computer. Subscribing merchants pay a lease fee on the remote terminals of $500 per month.

Costly system

Since computer marketing is so expensive, it requires buyers and sellers with enough volume to make the system cover its operating costs. For Telcot, that amount was estimated at 800,000 bales per year.

Because the Telcot system is so new—it started in 1975—it's too soon to tell if such a marketing system has encouraged more competitive buying and selling and thereby increased profits for growers. Numerous market forces other than Telcot have affected daily price variations. Before assumptions along these lines can be made, additional research will be needed.

[Based on the manuscript, "A Computerized Remote-Access Commodity Market: Telcot," by Don E. Ethridge, Commodity Economics Division, Texas Tech University.]

The Way It Was

Whether computer marketing will have as much impact on cotton as the cotton gin remains to be seen. But one thing is certain—today's methods have come a long way from past marketing techniques.

In the early days, growers took their bales into the center of town, or a place where buyers congregated, such as a warehouse or gin, and sold their crops directly off horse-drawn wagons. Known as "country markets," these exchanges were prevalent in the Cotton Belt.

The typical country market featured a courthouse square in the center of town, a general store, one or more banks, a telegraph office, and the establishments of the cotton buyers.

In some of these markets, buyers went straight to the wagon, drew samples from the bales, and made purchases on that basis. In other markets, growers would take samples of their cotton to the different establishments and sell to the highest bidder. This practice gave growers more opportunity to move from one buyer to another, and thereby get more bids for their crops.

The telegraph office was of vital importance in a country market, since it kept dealers informed of market prices on the New York and New Orleans exchanges. Market quotations were available at various intervals during the day, and were delivered to dealers in the form of written messages.

In the Cotton Belt, the price quotations were so widely used that they were common knowledge to most buyers and sellers; they had much bearing on the prices paid for cotton during this time.

A local dealer was anyone who bought cotton outright from the growers and then sold it locally, either to buyers of the larger merchants or to local mills.

There were several types of local dealers. Some were townspeople who bought and sold cotton for their livelihood; others dealt it as a sideline to another business.

Some storekeepers bought cotton from farmers who had purchased general merchandise on credit. This was an unusual way of collecting their debt, in that many of them sold the cotton for less than they paid for it, though many others sold it for much more than they paid.

When they bought the cotton, the storekeepers deducted the amount owed to them from the price. They feared if they didn't buy it, the growers would sell it somewhere else, and, having received the cash from another source, would spend it before paying their bill.

While these methods may seem awkward now, they were the foundation for the more efficient, electronic marketing system we have today.

[Based on the book, *Cotton Goes to Market, by A. H. Garside, published by Frederick A. Stokes Co., 1935.*]

Manmade or Natural? A Question of Energy

Ask someone a question about the ways to conserve energy and the answers invariably will concentrate on gas-saving automobiles or turning back thermostats in homes and offices. However, rising concern over higher energy prices and diminishing supplies force energy consumption research in all areas of the economy.

Take the production and use of textiles and apparel. During the last 3 decades, there has been a trend toward the greater use of manmade fibers produced from petroleum, instead of natural fibers. From 1950 to 1977, U.S. per capita consumption of cotton dropped from about 31 pounds to nearly 15 pounds; wool, from about 4 to 0.5 pounds; and flax and silk, from 0.1 pounds to a negligible amount.

Increase in manmade

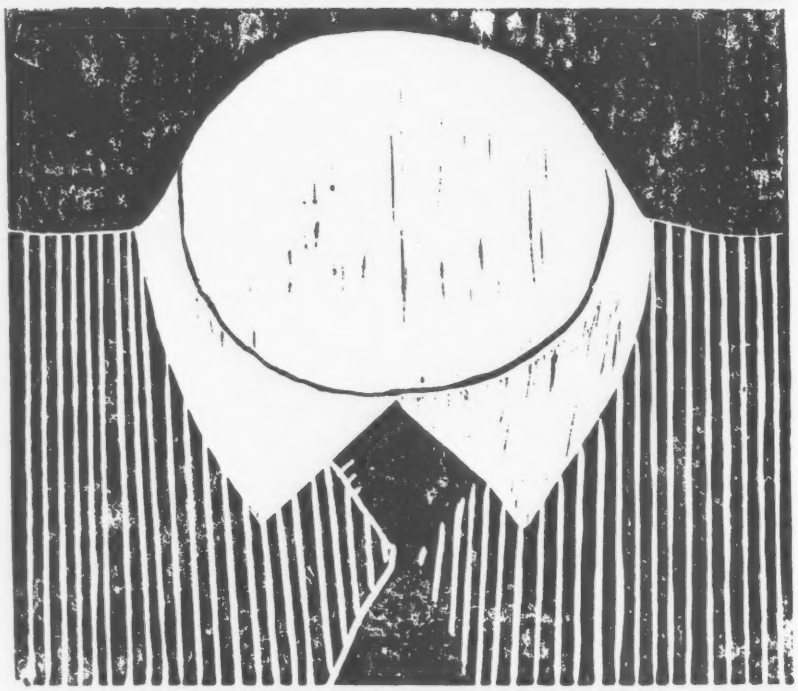
On the other hand, consumption of manmade fibers (mainly polyester, nylon, acrylic, modacrylic, olefin, and vinyon), rose from 0.9 pounds in 1950 to 37 pounds in 1977.

In 1950, cotton accounted for nearly 69 percent of total per capita consumption, but by 1977 that figure had dropped to about 26 percent. During the same period, the use of manmade fibers rose from 2 to 66 percent.

On the surface, it seems that a switch from manmade fiber to cotton would save energy. However, cotton production also requires petroleum and other energy sources.

Production not alone

Furthermore, the production of any fiber is just one part of the entire textiles system—fiber to fabric to garment, plus maintenance to the end of the garment's life.



Research has shown that fiber production accounts for less than 15 percent of total energy consumed in the manufacture of a specific garment, while maintenance of the garment, with commonly used laundering practices, may represent 55 to 80 percent.

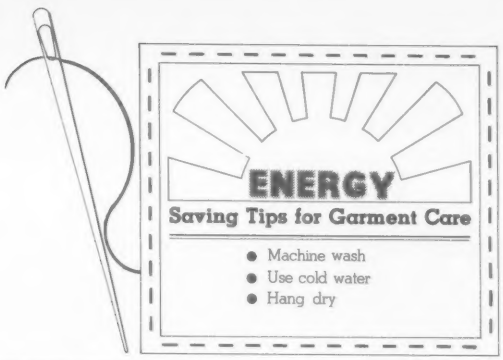
These findings imply that choice of fiber may be less important to energy conservation than consumer practices that reduce energy use in maintenance or extend the wear life of a garment.

Manmade vs. natural

A study by Yale University compared the energy consumed in the production and maintenance of a 100-percent cotton shirt with a 65/35-percent polyester/cotton shirt.

Study findings suggest that:

- Overall, the 100-percent cotton shirt is more costly in terms of energy use. Although a shirt made from manmade fiber requires about one-fourth more energy to produce than one from natural fibers, the natural-fiber shirt requires more than twice as much energy to maintain over the same number of laundering and drying cycles and lasts only two-thirds as long.
- For both types of shirts, but especially for the 100-percent cotton, more energy is needed to maintain (using common laundering practices) than to produce.



• The total energy demanded for production and maintenance, assuming an equal wear-life and standard laundering, was estimated at about 116 kilowatt-hours (kWh) for the cotton shirt, compared with around 72 kWh for the polyester/cotton blend.

• The total energy required for fiber, fabric, and production for the all-cotton shirt was estimated at about 26 kWh, versus nearly 33 kWh for the blend.

• The energy needed to produce enough fiber for the pure-cotton shirt, including fuel and electricity for farm equipment, irrigation, and ginning, plus the energy associated with the production of fertilizers and pesticides, was 5 kWh.

For the blend shirt, including the energy required for removal of petroleum from the ground, for the production of petrochemicals, and eventually for the manufacture of the fiber, it was almost double that amount.

• Electricity, steam, and natural gas are consumed by weaving and finishing mills in producing fabric from raw fiber. The energy required for producing cloth for the all-cotton and the blend shirts was estimated at about 19 and 20 kWh, respectively.

• The energy required to manufacture a shirt was estimated to be nearly 3 kWh (for either type), based on a 2-year average amount of electricity and natural gas used per dozen shirts for operating machinery and for heating and air conditioning plants.

• To maintain each type of shirt through 50 cycles of washing, drying, and ironing, the energy required was estimated at about 89 kWh for the cotton shirt and less than half that amount for the blend.

• The blend shirt was estimated to last 75 laundering cycles, about one-and-a-half times as long as the all-cotton one, which lasted only 50 cycles. Taking this into account, the cotton shirt would consume even more energy than the blend for production and use.

Consumer role

These results indicate that the consumer can play a major role in efforts to conserve energy in textiles and apparel.

Methods include using laundering equipment with energy-saving features, using cold water for wash and rinse cycles, hanging garments to dry, taking greater care in wearing and storing garments, and selecting styles and fabrics acceptable for longer periods of time.

[Based on "Energy Consumption In Textiles And Apparel," a speech by Annette Polyzou, home economist, Science and Education Administration, presented at the National Food and Agricultural Outlook Conference, Nov. 16, 1978, Washington, D.C.]

Declining Cotton Use

No one crop had as much impact on the early development of America's economy as "King Cotton." However, in recent years, modern technology has led to the dethronement of the once indispensable crop.

Over the past 30 years, the use of manmade fiber has increased dramatically, while natural fiber consumption has declined steadily.

Of the estimated 12.5 billion pounds of all fibers consumed by U.S. textile mills during 1978, cotton's share fell to slightly over 24 percent, a record low. Two significant factors led to cotton's poor showing:

• Although demand for many cotton products was strong, denim production was sharply curtailed as manufacturers worked off excess inventories.

• Cotton textile imports were at record levels. The raw cotton content of U.S. textile imports was 845 million pounds in 1978, 26 percent above 1977. On the other hand, the raw cotton content of our textile exports fell 4 percent to 355 million pounds.

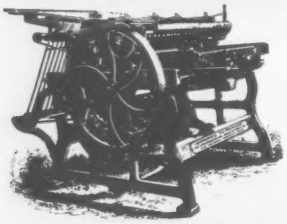
Due to strong competition from manmade fibers, use of cotton in textile fibers has dropped from 65 percent in 1950 to 25 percent in 1977.

Polyester and nylon continue to dominate the manmade fiber business, accounting for nearly three fourths of total usage. The remaining quarter is made up of olefin, acrylic, rayon, and acetate.

In 1979, economists expect world manmade fiber production capacity to rise more than 3.3 percent. This includes a 7.4 percent increase in the developing countries; 7.3 percent in the Socialist countries; and only 1.4 percent in the developed nations, mostly in the U.S.

[Based on *Cotton and Wool Situation*, CWS-17, December, 1978.]

Recent Publications



Single copies of the publications listed here are available free from *Farm Index*, Economics, Statistics, and Cooperatives Service, Rm. 482 GHI, 500 12th St., SW, U.S. Dept. of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university indicated. For addresses, see July and December issues of *Farm Index*. Publications marked with (#) may be purchased from NTIS, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, Va. 22161, at the price listed.

Selected Cotton Marketing Topics. Fibers and Oils Program Area, Commodity Economics Division.

Assembled and edited by Mildred V. Jones, CED, this booklet contains numerous articles, charts, and tables that have appeared in earlier issues of the *Cotton and Wool Situation*. Included are detailed discussions about exports, marketing, planting and harvesting intentions, and mill use. Copies are available free from Fibers and Oils Program Area, CED, ESCS, 500 12th St., SW., Washington, D.C. 20250.

Current Economic Research on Food Stamp Use. William T. Boehm and Paul E. Nelson, National Economic Analysis Division. PB 285 833. #

This report summarizes four selected food stamp research studies. The studies focused on the food stamp program's effect on food prices, sales by region, size, and kind of participating store, and where and on which food items the stamps are used. The studies were chosen for review because of their potential interest to consumers and food retailers. ($4)

Consumer Awareness and Use of Unit Pricing. Charlene C. Price, National Economic Analysis Division. PB 284 084. #

Grocery unit pricing works well for most consumers, according to this 1976 survey of 1,400 food shoppers. Nearly three-fourths of themwere aware of unit price labels; most of these claimed that they used unit pricing always or some of the time when food shopping. Meat and poultry unit pricing, compared with other food items, was most often used. Older people, less educated shoppers, and those from low-income households were the least aware of unit pricing. ($4.50)

Reclaiming Motes From Cotton Gin Waste: Practices, Supplies, and Prices. Joseph L. Ghetti and Edward H. Glade, Jr., Commodity Economics Division. PB 287 542. #

Approximately 32 percent of all active U.S. cotton gins reclaimed and sold cotton gin motes (wastes) during 1976/77. The collection ranged from 7 percent of active gins in Missouri to 95 percent in California. Total U.S. supply of motes was estimated at 93 million pounds. Ginners received an average of 12.8 cents per pound for cleaned motes and 7.4 cents per pound for uncleaned motes, but the price varied widely by region and type of buyer. ($4)

Sampling Techniques for Measuring and Forecasting Crop Yields. Harold F. Huddleston, Statistical Research Division. PB 284 388. #

This manual assembles information on mathematical modeling concerning crop yields for domestic and foreign users of crop statistics. In providing technical assistance to countries in the collection of agricultural data, measuring crop yields is important for decisions affecting imports and exports, as well as recommending ways of improving crop techniques. More emphasis is placed on forecasting of current-year yield per acre prior to harvest. ($9)

Research Issues Reemphasized by 1977 Food Policy Legislation. J. B. Penn, Deputy Administrator for Economics, and William T. Boehm, National Economic Analysis Division. PB 282 305. #

The provisions of the new food and agricultural legislation which became effective September 29, 1977, may be used to help establish a research agenda for policy analysts. Specifically discussed are the payment limitation, economic and natural disaster risk protection, flexible loan level, international grain trading, current plantings concept, production control, grain reserves, and domestic and foreign food assistance.

Foreign Ownership of U.S. Real Estate in Perspective. Gene L. Wunderlich, Natural Resource Economics Division. PB 282 092. #

In 1975, the Department of Commerce surveyed 6,000 foreign firms and individuals with direct investments in the U.S. Those owning at least 200 acres each owned a total of 4.9 million acres; owners of less than 200 acres were not included in the survey. This report explains some of the problems in collecting data on foreign ownership and briefly summarizes the contents of a new General Accounting Office report scheduled for release in June 1978. ($4)

Economic Trends

[1]Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2]Beginning January 1978 for all urban consumers. [3]Revised to adapt to weighting structure and retail price indexes for domestically produced farm foods from the new Consumer Price Index for all urban consumers (CPI-U) published by the Bureau of Labor Statistics. [4]Annual and quarterly data are on a 50-State basis. [5]Annual rates seasonally adjusted fourth quarter. [6]Seasonally adjusted. [7]As of March 1, 1967. [8]As of February 1.

Source: USDA (Agricultural Prices, Foreign Agricultural Trade, and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report, and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force, Wholesale Price Index, and Consumer Price Index).

Item	Unit or Base Period	1967	1978 Year	1978 Jan.	1978 Nov.	1978 Dec.	1979 Jan.
Prices:							
Prices received by farmers	1967=100	—	210	186	216	222	232
Crops	1967=100	—	203	188	202	205	210
Livestock and products	1967=100	—	216	185	228	237	252
Prices paid, interest, taxes, and wage rates	1967=100	—	219	209	225	226	233
Prices paid (living and production)	1967=100	—	212	201	219	221	225
Production items	1967=100	—	216	203	222	225	230
Ratio[1]	1967=100	—	96	89	96	98	100
Producer prices, all commodities	1967=100	—	209.3	200.1	215.7	217.4	220.7
Industrial commodities	1967=100	—	209.4	201.6	216.0	217.0	219.9
Farm products	1967=100	—	212.7	192.2	219.2	222.4	230.1
Processed foods and feeds	1967=100	—	202.6	191.5	208.1	211.9	215.3
Consumer price index, all items[2]	1967=100	—	195.4	187.2	202.0	202.9	204.7
Food[2]	1967=100	—	211.4	199.2	217.8	219.4	223.9
Farm Food Market Basket:[3]							
Retail cost	1967=100	—	199.4	185.2	205.9	207.7	213.3
Farm value	1967=100	—	207.4	186.4	209.1	218.9	232.6
Farm-retail spread	1967=100	—	194.5	184.4	203.9	200.8	201.6
Farmers' share of retail cost	Percent	—	39.3	38.0	38.4	39.8	41.1
Farm Income:[4]							
Volume of farm marketings	1967=100	—	—	—	—	—	—
Cash receipts from farm marketings	Billion dollars	—	110.0	—	—	—	—
Crops	Billion dollars	—	52.0	—	—	—	—
Livestock and products	Billion dollars	—	58.0	—	—	—	—
Gross income[5]	Billion dollars	49.9	123.9	—	—	133.0	—
Farm production expenses[5]	Billion dollars	38.2	95.8	—	—	101.3	—
Net income before inventory adjustment[5]	Billion dollars	11.7	28.1	—	—	31.7	—
Agricultural Trade:							
Agricultural exports	Million dollars	6,380	29,395	1,938	2,806	2,737	—
Agricultural imports	Million dollars	4,452	14,804	1,247	1,282.0	1,360	—
Land Values:							
Average value per acre	Dollars	[7]168	[8]488	—	—	—	[8]556
Total value of farm real estate	Billion dollars	[7]189	[8]512	—	—	—	[8]580
Gross National Product:[5]	Billion dollars	796.3	2,106.9	—	—	2,212.1	—
Consumption	Billion dollars	490.4	1,340.4	—	—	1,405.1	—
Investment	Billion dollars	120.8	344.6	—	—	360.1	—
Government expenditures	Billion dollars	180.2	434.0	—	—	454.6	—
Net exports	Billion dollars	4.9	−12.0	—	—	−7.8	—
Income and Spending:[6]							
Personal income, annual rate	Billion dollars	626.6	1,707.6	1,615.5	1,785.8	1,807.6	1,815.4
Total retail sales, monthly rate	Billion dollars	24.4	65.0	60.0	68.6	69.4	69.7
Retail sales of food group, monthly rate	Billion dollars	5.8	14.3	13.6	14.9	15.2	15.4
Employment and Wages:[6]							
Total civilian employment	Millions	74.4	94.4	92.9	95.8	95.9	96.3
Agricultural	Millions	3.8	3.3	3.4	3.3	3.4	3.2
Rate of unemployment	Percent	3.8	6.0	6.3	5.8	5.9	5.8
Workweek in manufacturing	Hours	40.6	40.4	39.2	40.9	41.4	40.0
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	6.16	5.97	6.38	6.47	6.47
Industrial Production:[6]	1967=100	—	145.1	138.8	149.5	150.5	150.7
Manufacturers' Shipments and Inventories:[6]							
Total shipments, monthly rate	Million dollars	46,487	125,207	114,322	132,380	133,771	—
Total inventories, book value end of month	Million dollars	84,527	197,302	180,977	196,587	197,302	—
Total new orders, monthly rate	Million dollars	47,062	129,109	117,899	137,618	138,562	—

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